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ABSTRACT

Thirty-two Hawaiian children in grades two, four, and seven participated in a study designed to test an ethnographic observation that rural Hawaiian children are highly sensitive to movement and location in their visual environment, and also to test the effect on the children of using Pidgin versus Standard English (S.E.). The children were divided into pairs; one child in each pair then viewed a videotape showing abstract shapes--half of which were stationary and half of which moved across the screen--and attempted to describe them to the other child. Half the subjects from each grade level performed the task in Pidgin and half in S.E. Analysis of the results indicated that the seventh graders committed significantly fewer errors than both younger groups; that the second graders committed slightly fewer errors when the task was performed in Pidgin, but that both fourth and seventh graders committed fewer errors when the task was performed in S.E.; and that there were no differences in performance when the stimuli moved compared with when they were stationary. (GW)

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Technical Report # 74

The Influence of Dialect and Stimulus Mobility on Hawaiian Children's Communication Skills[1]

The Kamehameha Early Education Program

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The Kamehameha Early Education Program

The Kamehameha Early Education Program (KEEP) is a research and development program of The Kamehameha Schools/Bernice P. Bishop Estate. The mission of KEEP is the development, demonstration, and dissemination of methods for improving the education of Hawaiian and Part-Hawaiian children. These activities are conducted at the Ka Na'i Pono Research and Demonstration School, and in public classrooms in cooperation with the State Department of Education. KEEP projects and activities involve many aspects of the educational process, including teacher training, curriculum development, and child motivation, language, and cognition. More detailed descriptions of KEEP's history and operations are presented in Technical Reports #1-4.

Technical Report # 74

The Influence of Dialect and Stimulus Mobility on Hawaiian Children's Communication Skills

Tom Ciborowski D. Price-Williams

In an earlier report (Ciborowski and Price-Williams, Technical Report #73) we drew a distinction between linguistic competence and communicative competence (cf. Cazden, 1967; Krauss & Glucksberg, 1966; 1970). By linguistic competence we mean nothing more than competence in the common linguistic feature of a language or dialect, for example, such features as pluralization or active-passive usage. By communicative competence we mean the ability of a speaker to transmit (or communicate) a clear message or piece of information to a listener, where linguistic features are assumed to not contribute to the possible ambiguity or "noise" in the communication. In the present experiment, we seek to draw the same distinction while at the same time exploring several variables which might affect communicative competence in Hawaiian schoolchildren.

A number of anthropology graduate students associated with the present ongoing research project (UCLA-Carnegie Project) have reported that rural Hawaiian schoolchildren appear to be very visually sensitive to their social and physical environment. For example, it was observed that the Hawaiian schoolchildren were extremely aware of the location of their friends and playmates during a recess period, even though they appeared to be paying little, if any, attention to their playmates. This ethnographic observation, along with a number of similar observations, lend credence to the possibility that Hawaiian schoolchildren may be highly sensitive to stimuli processes via a

a visual modality. The present technical report represents an effort to experimentally investigate this possibility.

Another major variable investigated in the present study is the particular dialect of the English language spoken by Hawaiian schoolchildren. The dialect is commonly referred to as Pidgin (or Hawaii-Creole English) and it differs structurally from Standard English (S.E.) in a variety of ways (cf. Carr, 1972). In the present paper we will follow current linguistic convention in considering both Pidgin and S.E. as merely different dialects of the English language, with no implication that one dialect is in any way linguistically "inferior" to the other (cf. Ciborowski, 1974).

To investigate the possible influences of both stimulus mobility (or visual sensitivity) and dialect we used a procedure adapted from Krauss and Glucksberg (1970).

Method

Subjects

A total of 32 Ss from Hookean Elementary School participated in the study. The school is located in south Kona on the Big Island of Hawaii. The children are predominately Hawaiian in heritage and a complete description of the children can be found in earlier technical reports in this series. The children who participated in the study are randomly selected from the 2nd, 4th and 7th grades.

Design

The Ss were distributed among experimental conditions as follows: Grade (2nd, 4th, 7th) x Dialect (Pidgin/S.E.) x Stimulus Mobility (static/moving). Half the Ss from each grade level performed the task in Pidgin and the remaining half in S.E. The experiment was a repeated measures design in that each pair of Ss in each of the two stimulus mobility conditions (static/moving) performed the task a total of three times. The order of presentation of the stimuli (static vs. moving) was counterbalanced across Ss.

Stimuli

The basic stimuli consisted of a video tape of six abstract shapes adapted from those used by Krauss and Glucksberg (1970). The property they have in common is their low codeability (Brown & Lenneberg, 1954). These shapes are shown in Figure 1.

In the Krauss and Glucksberg (1970) study, pictures of the above shapes were attached to wooden blocks. In the present experiment the shapes were first cut out of a stiff black plastic sheet. The shapes were then placed on a white posterboard and videotaped.[1] In the first half of the tape each of the six stimuli appeared stationary for 30 seconds, followed by five seconds of blank tape before the next stimuli appeared. On the second half of the tape each of the six stimuli again appeared for 30 seconds, but now the stimulus moved from left to right in a smooth continuous motion. As in the stationary stimulus condition, the disappearance of each stimulus was followed by five seconds of blank tape.

A video portapack was used to show the tape and the stimuli appeared on a black and white TV monitor.

Procedure

A pair of children was brought to the testing location and one child was randomly selected as the Speaker and the other child as the Listener. The children were seated at a table and separated by an opaque screen. The children were told that the Speaker would be seeing six unusual (funny) shapes on a TV screen and the Speaker's job was to describe these shapes to the Listener.

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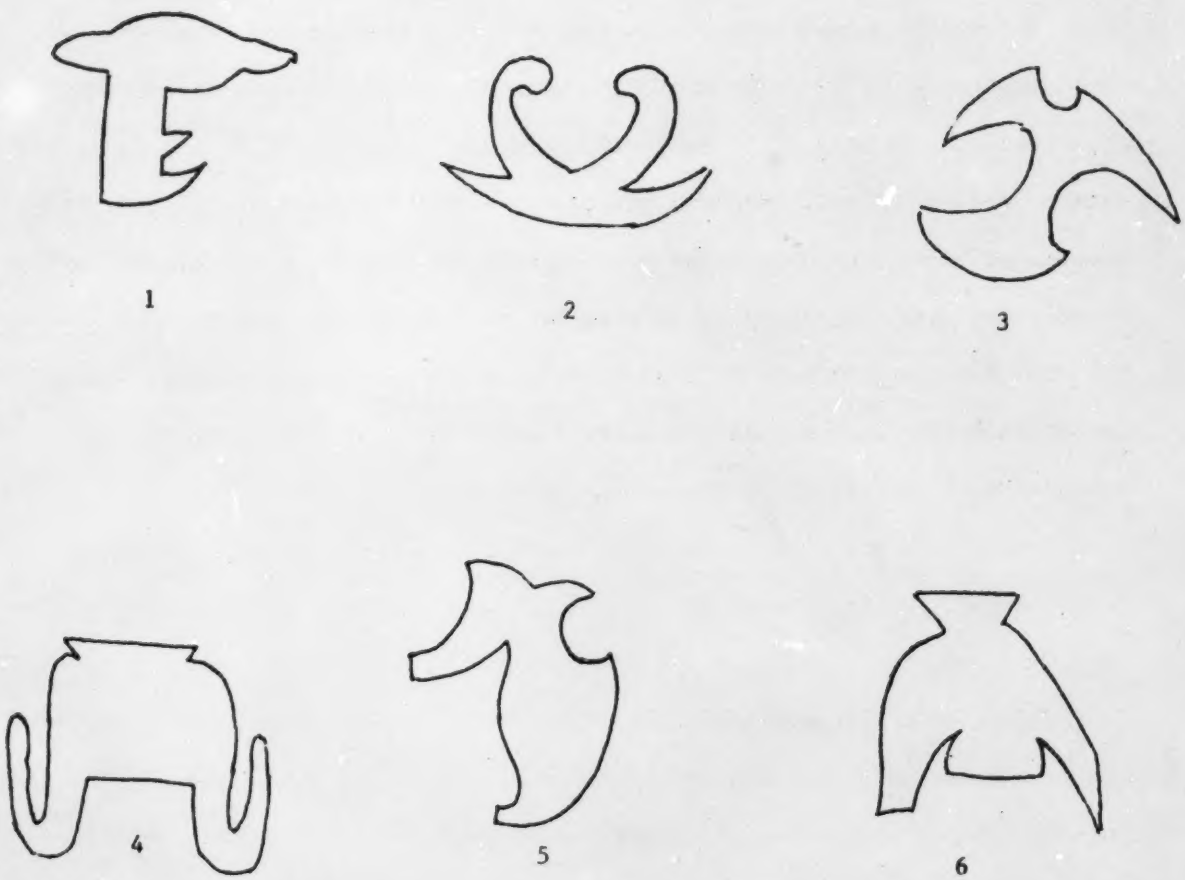
[1] We are indebted to Mr. Larry Loganbill of the Kamehameha Early Education Program who prepared the tape.

Figure 1

Stimuli Used in the Communication Task[a]



[a] The first, second, fourth and fifth designs are identical to those used by Krauss & Glucksberg (1970). The third and sixth were somewhat altered so that they could be cut out of a thick black plastic sheet.

The children were also told that the Speaker would see each shape on the TV screen for about half a minute before the next shape appeared, while the Listener would have all six shapes in from of him. The children were also told that it was the Speaker's job to describe each shape as best as he could so that the Listener could pick out the shape that the Speaker was describing. The children were also told that they would do this task six times and that they could ask questions of each other and talk as much as they wished. The Listener was reminded that he could talk and ask questions of the Speaker as often as he wished. The Speaker was told that on the TV screen the entire set of six shapes would be stationary (not move) on the TV screen three times and the shapes would also move across the screen three times.

To insure that the children understood the experimental task they performed the experiment twice using a set of familiar pictures (cat, girl, wagon, etc.). The instructions were first written in Standard English and then translated into Pidgin. Half the Ss from each grade level performed the experiment in S.E. and the remaining half in Pidgin.

Results

The primary measures of performance were the number of errors committed by the Listeners and the number of idiosyncratic responses uttered by the Speaker. Both performance measures were submitted to an analysis of variance.[2]

The analysis of variance revealed that the main effect of grade level was significant, $F(2,84) = 18.87$, $p < .01$. A series of Newman-Keuls tests revealed that the 7th graders committed significantly fewer errors than both the fourth and second graders, $q(2,30) = 4.28$, $p < .05$ and $q(3,30) = 7.92$ $p < .01$, respectively. The fourth graders committed significantly more errors than the second graders, $q(2,30) = 3.63$, $p < .05$. There were no other

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[2] We are indebted to Professor John Digman for indicating the appropriate error term to be used in calculating the F statistic.

significant main effects.

The Dialect factor significantly interacted with grade level, $F(2,84) = 3.27$, $p < .05$, and this interaction is shown in Table 1.

A Mann-Whitney U test revealed that both the 7th and 4th graders comitted fewer errors when the task was performed in S.E. than in Pidgin, $U(12,18) = 64.5$, $p < .05$, and $U(18,18) = 104$, $p < .05$, respectively. A reversed pattern of performance was obtained for the 2nd graders. The 2nd graders committed fewer errors when the task was performed in Pidgin than in S.E., but the difference proved nonsignificant.

An analysis of variance of the idiosyncratic responses revealed that only the Dialect factor proved significant, $F(1,84) = 6.36$, $p < .01$. Overall, more idiosyncratic responses were made when the task was conducted in Pidgin than in Standard English.

Discussion

Contrary to what we might expect from the ethnographic reports of a number of anthropology students, we observed no differences in performance when the stimuli moved than when the stimuli were stationary. This outcome may be attributable to several reasons. First, of course, it is possible that Hawaiian schoolchildren as a population group are not perceptually acute to movement in their environment. Second, it is possible that the ethnographic reports are, in fact, reliable, but the present experiment did not tap the processes leading to that kind of behavior. It is possible that by varying the context of the testing situation (e.g., more naturalistic procedures) we might experimentally verify the ethnographic observations. We are currently exploring several possibilities along these lines. Overall, the results of the present

Table 1

Mean Errors as a Function of

Dialect and Grade Level

	Grade		
Dialect	2nd	4th	7th
Pidgin	3.7	3.4	2.1
S. E.	4.5	2.5	1.1

experiment do not produce a surprising picture. As Hawaiian children grow older their communicative skills improve and their skills in Standard English improve. The picture that seems to be emerging is that Pidgin speaking skills are relatively better than Standard English skills in the first year or two of school; but the difference falls off sharply in the ensuing school years as the children gain greater skill in Standard English. But we must view this pattern of performance with a certain degree of caution. The testing was conducted in the schoolground area, and although every effort was made to "de-school" (or "de-formalize") the testing situation, the children may still have viewed the experiment as some formal extension of the classroom milieu. If this is true it is not surprising that the dialect variable which proved to be of primary importance was verbal skill in Standard English. It is conceivable that if the context of the experiment were altered along lines more ecologically salient to the children (e.g., beach activity, fishing acitivity, etc.), the influence of Pidgin verbal skill may have played a stronger role.

One interesting feature of the present experiment was that the overall pattern of observed performance varied from the performance observed in Technical Report #73 which used basically the same stimuli but differed in the way the stimuli were presented to the Speaker. In Report #73, the stimuli were used haptically rather than purely visually and it was observed that the oldest Ss committed fewer errors when the task was conducted in Pidgin than in Standard English. In the present experiment, the exact opposite pattern of performance was obtained. In terms of overall performance the pattern observed in the present experiment closely resembled the performance obtained in the first Technical Report which used a free-recall memory task. Although it is hazardous to speculate on the obtained findings at this early stage of investigation, it would appear possible that the present experiment and the free-recall

task were perhaps tapping the same underlying psychological and cognitive processes. Future experiments may illuminate this possibility.

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